

## CLAIMS

Therefore, having thus described the invention, at least the following is claimed:

- 1 1. A free-standing compliant off-chip interconnect, comprising:  
2 a first arcuate structure;  
3 a second arcuate structure, wherein the first arcuate structure and the second  
4 arcuate structure are disposed in substantially parallel planes; and  
5 a middle post, wherein the first arcuate structure is connected to a lower portion of  
6 the middle post, and wherein the second arcuate structure is connected to an upper  
7 portion of the middle post.
- 1 2. The compliant off-chip interconnect of claim 1, wherein the first arcuate structure  
2 has a first mean radius and the second arcuate structure has a second mean radius,  
3 wherein the first mean radius and the second mean radius are not equivalent.
- 1 3. The compliant off-chip interconnect of claim 1 wherein the first arcuate structure  
2 has a first mean radius and the second arcuate structure has a second mean radius,  
3 wherein the first mean radius and the second mean radius are equivalent.
- 1 4. The compliant off-chip interconnect of claim 1, wherein the first arcuate structure  
2 has a thickness of about 3 to about 30 micrometers, a width of about 5 to about 50  
3 micrometers, and a mean radius of about 5 to about 100 micrometers.

1 5. The compliant off-chip interconnect of claim 1, wherein the second arcuate  
 2 structure has a thickness of about 3 to about 30 micrometers, a width of about 5 to about  
 3 50 micrometers, and a mean radius of about 5 to about 50 micrometers.

1 6. The compliant off-chip interconnect of claim 1, wherein the middle post has a  
 2 height of about 5 to about 50 micrometers.

1 7. The compliant off-chip interconnect of claim 1, further comprising:  
 2 a substrate upon which the first arcuate structure and the second arcuate structure  
 3 are disposed.

10037132.023602  
 20220229 10:23:02

1 8. A electronic package comprising:  
2 a substrate; and  
3 a free-standing compliant off-chip interconnect, wherein the free-standing  
4 compliant off-chip interconnect includes a first free-standing arcuate structure that is  
5 substantially parallel to the substrate.

1 9. The electronic package of claim 8, wherein the free-standing compliant off-chip  
2 interconnect further includes:  
3 a second free-standing arcuate structure that is is substantially parallel to the  
4 substrate, and wherein the first arcuate structure and the second arcuate structure are  
5 disposed in substantially parallel planes.

1 10. The electronic package of claim 8, wherein the first arcuate structure is connected  
2 to an assembly post.

1 11. The electronic package of claim 8, wherein the first arcuate structure is connected  
2 to an assembly post with a first bridge.

1 12. The electronic package of claim 11, wherein the first bridge includes a curved  
2 portion connecting the first arcuate structure to the assembly post.

1 13. The electronic package of claim 9, wherein the second arcuate structure is  
2 connected to a fabrication post with a second bridge.

1 14. The electronic package of claim 13, wherein the second bridge includes a curved  
2 portion connecting the second arcuate structure to the fabrication post.

1 15. The electronic package of claim 8, wherein the first arcuate structure has a  
2 thickness of about 3 to about 30 micrometers, a width of about 5 to about 50  
3 micrometers, and a mean radius of about 5 to about 100 micrometers.

1 16. The electronic package of claim 9, wherein the second arcuate structure has a  
2 thickness of about 3 to about 30 micrometers, a width of about 5 to about 50  
3 micrometers, and a mean radius of about 5 to about 100 micrometers.

1 17. The electronic package of claim 8, wherein the assembly post has a height of  
2 about 5 to about 50 micrometers.

1 18. The electronic package of claim 9, wherein the first arcuate structure has a first  
2 mean radius and the second arcuate structure has a second mean radius, wherein the first  
3 mean radius and the second mean radius are not equivalent.

1 19. The electronic package of claim 9, wherein the first arcuate structure has a first  
2 mean radius and the second arcuate structure has a second mean radius, wherein the first  
3 mean radius and the second mean radius are equivalent.

- 1 20. The electronic package of claim 8, wherein the substrate can be a material chosen
- 2 from a semiconductor, glass, ceramic, and quartz material.

- 1 21. A method of fabricating a free-standing arcuate structure compliant off-chip  
2 interconnect, the method comprising:  
3 depositing an arcuate structure compliant off-chip interconnect material; and  
4 forming the free-standing arcuate structure compliant off-chip interconnect.
- 1 22. The method of claim 21, wherein depositing an arcuate structure compliant off-  
2 chip interconnect material further comprises:  
3 forming a first arcuate structure, wherein the first arcuate structure is substantially  
4 parallel to the substrate.
- 1 23. The method of claim 22, wherein depositing an arcuate structure compliant off-  
2 chip interconnect material further comprises:  
3 forming a second arcuate structure, wherein the first arcuate structure and the  
4 second arcuate structure are disposed in substantially parallel planes.

1 24. The method of claim 22, wherein depositing an arcuate structure compliant off-  
2 chip interconnect material further comprises:  
3 forming the first arcuate structure having a thickness of about 3 to about 30  
4 micrometers, a width of about 5 to about 50 micrometers, and a mean radius of about 5 to  
5 about 100 micrometers.

1 25. The method of claim 23, wherein depositing an arcuate structure compliant off-  
2 chip interconnect material further comprises:  
3 forming the second arcuate structure having a thickness of about 3 to about 30  
4 micrometers, a width of about 5 to about 50 micrometers, and a mean radius of about 5 to  
5 about 100 micrometers.

1 26. The method of claim 21, wherein the substrate is chosen from semiconductor,  
2 ceramic, glass, and quartz materials.